Volume 251 June 1993

CONTENTS

Global linear stability analysis of weakly non-parallel shear flows. PETER A. MONKEWITZ, PATRICK HUERRE and JEAN-MARC CHOMAZ *page* 1

On the irreversibility of internal wave dynamics due to wave trapping by mean flow inhomogeneities Part 1. Local analysis. SERGEI I. BADULIN and VICTOR I. SHRIRA 21

The mean rise velocity of pairwise-interacting bubbles in liquid. L. VAN WIJNGAARDEN 55

The formation of toroidal bubbles upon the collapse of transient cavities. J. P. BEST 79

Turbulent shear flow over slowly moving waves. S. E. BELCHER and J. C. R. HUNT 109

The influence of swirl and confinement on the stability of counterflowing streams. J. D. GODDARD, A. K. DIDWANIA and C.-Y. WU 149

The near-wake of an oscillating trailing edge: mechanisms of periodic and aperiodic response. A. LOTFY and D. ROCKWELL 173

A wake singularity potential flow model for airfoils experiencing trailing-edge stall. W. W. H. YEUNG and G. V. PARKINSON 203

Isotropy of the small scales of turbulence at low Reynolds number. J. KIM and R. A. ANTONIA 219

Double reflection of capillary/gravity waves by a non-uniform current: a boundary-layer theory. KARSTEN TRULSEN and CHIANG C. MEI 239

Formation of solitons in transitional boundary layers: theory and experiment. V. S. KACHANOV, O. S. RYZHOV and F. T. SMITH 273

Shear-induced particle diffusion and longitudinal velocity fluctuations in a granular-flow mixing layer. S. S. HSIAU and M. L. HUNT 299

Axially invariant laminar flow in helical pipes with a finite pitch. SHIJIE LIU and JACOB H. MASLIYAH 315

The hydraulics of a stratified fluid flowing through a contraction. LAURENCE ARMI and RICHARD WILLIAMS 355

Time-dependent isolated anomalies in zonal flows. KARL R. HELFRICH and JOSEPH PEDLOSKY 377

Suspensions of prolate spheroids in Stokes flow. Part 1. Dynamics of a finite number of particles in an unbounded fluid. IVAN L. CLAEYS and JOHN F. BRADY 411

Suspensions of prolate spheroids in Stokes flow. Part 2. Statistically homogeneous dispersions. IVAN L. CLAEYS and JOHN F. BRADY 443

Volume 251 June 1993

CONTENTS

Global linear stability analysis of weakly non-parallel shear flows. PETER A. MONKEWITZ, PATRICK HUERRE and JEAN-MARC CHOMAZ *page* 1

On the irreversibility of internal wave dynamics due to wave trapping by mean flow inhomogeneities Part 1. Local analysis. SERGEI I. BADULIN and VICTOR I. SHRIRA 21

The mean rise velocity of pairwise-interacting bubbles in liquid. L. VAN WIJNGAARDEN 55

The formation of toroidal bubbles upon the collapse of transient cavities. J. P. BEST 79

Turbulent shear flow over slowly moving waves. S. E. BELCHER and J. C. R. HUNT 109

The influence of swirl and confinement on the stability of counterflowing streams. J. D. GODDARD, A. K. DIDWANIA and C.-Y. WU 149

The near-wake of an oscillating trailing edge: mechanisms of periodic and aperiodic response. A. LOTFY and D. ROCKWELL 173

A wake singularity potential flow model for airfoils experiencing trailing-edge stall. W. W. H. YEUNG and G. V. PARKINSON 203

Isotropy of the small scales of turbulence at low Reynolds number. J. KIM and R. A. ANTONIA 219

Double reflection of capillary/gravity waves by a non-uniform current: a boundary-layer theory. KARSTEN TRULSEN and CHIANG C. MEI 239

Formation of solitons in transitional boundary layers: theory and experiment. V. S. KACHANOV, O. S. RYZHOV and F. T. SMITH 273

Shear-induced particle diffusion and longitudinal velocity fluctuations in a granular-flow mixing layer. S. S. HSIAU and M. L. HUNT 299

Axially invariant laminar flow in helical pipes with a finite pitch. SHIJIE LIU and JACOB H. MASLIYAH 315

The hydraulics of a stratified fluid flowing through a contraction. LAURENCE ARMI and RICHARD WILLIAMS 355

Time-dependent isolated anomalies in zonal flows. KARL R. HELFRICH and JOSEPH PEDLOSKY 377

Suspensions of prolate spheroids in Stokes flow. Part 1. Dynamics of a finite number of particles in an unbounded fluid. IVAN L. CLAEYS and JOHN F. BRADY 411

Suspensions of prolate spheroids in Stokes flow. Part 2. Statistically homogeneous dispersions. IVAN L. CLAEYS and JOHN F. BRADY 443

Suspensions of prolate spheroids in Stokes flow. Part 3. Hydrodynamic transport properties of crystalline dispersions. IVAN L. CLAEYS and JOHN F. BRADY 479

Baroclinic instability of large-amplitude geostrophic flows. E. S. BENILOV 501

First-order resonance in the reflection of baroclinic Rossby waves. FEDERICO GRAEF 515

Direct numerical simulation of isotropic turbulence interacting with a weak shock wave. SANGSAN LEE, SANJIVA K. LELE and PARVIZ MOIN 533

The vaporization of a liquid front moving through a hot porous rock. ANDREW W. WOODS and SHAUN D. FITZGERALD 563

An experimental study of laminar plumes. ELISHA MOSES, GIOVANNI ZOCCHI and ALBERT LIBCHABER 581

Flow past a circular cylinder on a β-plane. E. R. JOHNSON and M. A. PAGE 603

On longitudinal vortices in curved channel flow. ALESSANDRO BOTTARO 627

Saltating particles over flat beds. PHILIP NALPANIS, J. C. R. HUNT and C. F. BARRETT 661

The interaction of waves with a row of circular cylinders. C. M. LINTON and D. V. EVANS 687

Thin liquid layers supported by steady air-flow surface traction. A. C. KING and E. O. TUCK 709

REVIEWS

Mathematical Modeling of Melting and Freezing Processes, by V. Alexiades and A. D. Solomon 719

High Angle of Attack Aerodynamics, by J. Rom 720

SHORTER NOTICES 721

INDEX TO VOLUME 251 724

SCHEDULE OF INTERNATIONAL CONFERENCES ON FLUID MECHANICS 726